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| APPLICATION NO.                                                   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|-------------------------------------------------------------------|-------------|----------------------|----------------------|------------------|
| 10/699,708                                                        | 11/03/2003  | Mark A. McCord       | 10011.002110 (P1178) | 3523             |
| 31894                                                             | 7590        | 04/28/2004           | EXAMINER             |                  |
| OKAMOTO & BENEDICTO, LLP<br>P.O. BOX 641330<br>SAN JOSE, CA 95164 |             |                      | WELLS, NIKITA        |                  |
|                                                                   |             |                      | ART UNIT             | PAPER NUMBER     |
|                                                                   |             |                      | 2881                 |                  |

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/699,708             | MCCORD ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Nikita Wells           | 2881                |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                           |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>042304</u> | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 8, and 10-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo et al. (6,232,787 B1).

With respect to claims 1-4, 8, 10-15, and 28, Lo et al. disclose (Fig. 1; Abstract; Col. 3, lines 31-53; Col. 4, lines 40-58) a method and apparatus with a capability of setting a surface charge of an area on a substrate (114) to a desired level, the apparatus comprising: a column (120) for generating an imaging electron beam and for directing the imaging beam to the area; an electron flood gun (128) for generating a flood electron beam and for directing the flood beam to the area; a stage (112) for holding the substrate (114), and circuit for controlling a stage bias voltage (136) applied to the stage (112), for controlling the level of surface charge maintained on the substrate.

With respect to claims 16-27, Lo et al. disclose (Fig. 1; Abstract; Col. 2, lines 22-40; Col. 3, lines 31-53; Col. 4, lines 40-58) a method and an apparatus with a capability to maintain focus of a main electron beam incident upon a substrate (114), the apparatus comprising: a column (120) configured to generate and direct the main beam towards an imaging area of the substrate (114); an objective lens with a variable focal length that is configured to focus the main beam onto the imaging area; a monitor beam gun (128) configured to generate and direct a monitor

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electron beam towards a monitoring area of the substrate (114) at a non-perpendicular incidence angle (see Fig. 1, and Col. 4, lines 10-22) and an in-focus detector (132)(Col. 4, lines 23-35) configured to detect an in-focus band in data collected from the monitor beam.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. (6, 232,787 B1).

With respect to the above claims, Lo et al. disclose an apparatus with a capability of setting a surface charge of an area on a substrate (114) to a desired level (as shown in paragraph 2 above). Lo et al. fail to specifically disclose that the circuitry to produce the generated bias voltage includes a digital-to-analog converter, amplifier, and attenuator. However, Lo et al. disclose (Col. 4, lines 43-48; Col. 6, lines 3-23) the use of a control computer (154) and sophisticated control electronics (142) which would incorporate a digital-to-analog converter, amplifier, and attenuator, all of which are well known in prior art.

***Drawings***

5. Minor informalities are found in Figs. 1 and 7. "Background Art" has to be changed to --Prior Art--. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

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***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lo et al. (6,344,750 B1) disclose a charged particle beam semiconductor inspection system utilizing a voltage contrast method to control the surface charge on a substrate.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikita Wells whose telephone number is (571) 272-2484. The examiner can normally be reached on 8:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Nikita Wells

Primary Examiner, Art Unit 2881

April 22, 2004